Upper Gila Watershed

Watershed Description

The Upper Gila Watershed in Arizona is defined by the Gila River drainage area, from the New Mexico border to Coolidge Dam (San Carlos Reservoir). This 7,354 square mile watershed is occupied by only 51,500 people (2000 census), mostly living in the Safford and Clifton areas. Land ownership is approximately: 47% federal, 28% tribal, 15% state, and 10% private. Agriculture is a primary land use in the Safford area. Outside of this area, land use is primarily open range grazing and recreation, with a minor amount of forestry in the national forests. A major mining facility is located in the Clifton-Morenci area along the San Francisco River. Five wilderness areas and the Gila Box Riparian National Conservation Area are located in this watershed and have restricted uses.

Elevations range from 10,028 feet (above sea level) on Mount Graham to 2,990 feet at Coolidge Dam. Except for a few sky islands (mountains located in the desert), most of the watershed is below 5,000 feet, with low desert flora and fauna and warm water aquatic communities where perennial waters exist.

Water Resources

Precipitation is limited with only 10 inches of rain and up to 2 inches of snow in some locations. Perennial flow is limited to the Gila River above Safford, the San Francisco River and its tributaries, Eagle Creek, portions of Bonita Creek, the San Carlos River, and short segments of tributaries on Mount Graham and in the Chiricahua Mountains. In the Safford area, irrigated agriculture uses a high percentage of the Gila River flow.

An estimate of surface water resources in the Upper Gila Watershed is provided in the following table. Waters on Tribal lands are not assessed by ADEQ; therefore, those statistics are shown separately.

Estimated Surface Water Resources in the Upper Gila Watershed

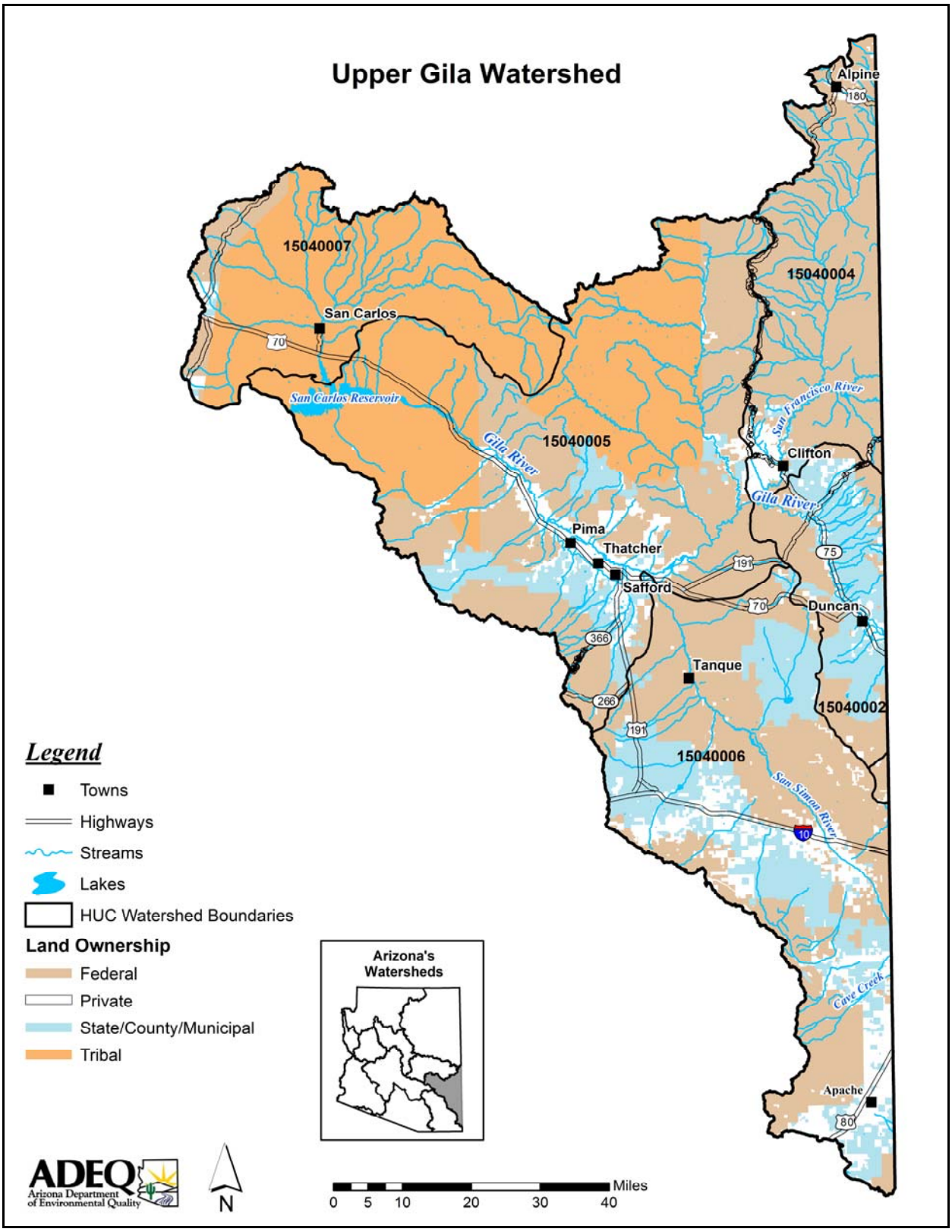
Not on Tribal Land

	Perennial	Intermittent	Ephemeral
Stream miles	445	970	6,305
	Perennial	Non-perennial	
Lake acres	2,289	0	

On Tribal Land – Not Assessed

	Perennial	Intermittent	Ephemeral
Stream miles	105	50	3,795
	Perennial	Non-perennial	
Lake acres	9,523	11,119	

Ambient monitoring focuses on perennial waters; however, special investigations may identify water quality problems on intermittent and even ephemeral waters. Estimated miles and acres are based on USGS digitized hydrology at 1:100,000 and have been rounded to the nearest 5 miles or 5 acres.


Upper Gila Watershed
Alpine
180
15040007
15040004
San Carlos
70
San Carlos Reservoir
Gila River
15040005
San Francisco River
Clifton
Gila River
Pima
Thatcher
191
75
Safford
70
Duncan
366
Tanque
266
15040002
191
15040006
San Simon River
10
Cave Creek
Apache
80
Legend
Towns
Highways
Streams
Lakes
HUC Watershed Boundaries
Land Ownership
Federal
Private
State/County/Municipal
Tribal
Arizona's Watersheds
ADEQ
Arizona Department of Environmental Quality
N
0 5 10 20 30 40
Miles

Watershed Partnerships

- Gila Watershed Partnership
  The Upper Gila River watershed is about 6,000 square miles, extending from New Mexico to Coolidge Dam and includes the San Carlos Reservation. The objectives of this watershed group are to conserve natural resources, enhance the environment, and maintain or improve the economy and recreational opportunities. It encourages collaboration with both the San Carlos Apache Tribe and southwestern New Mexico. The group meets on the 2nd Tuesday of the month in Safford. Contact Jan Holder (928) 348-4577 or watershedholder@yahoo.com.

- Eagle Creek Watershed Partnership
  This subwatershed within the Gila Watershed Partnership, is also meeting. Its goal is to work together as a community to preserve ranching and rural traditions, improve and preserve the watershed and valuable resources, protect and enhance habitat for wildlife and domestic animals, and find a sustainable economic survival for the community. They meet on the 2nd Friday of month. Contact Chase Caldwell at (480) 635-1245 or chase.caldwell@cox.net.

Special Studies and Water Quality Improvement Projects

Total Maximum Daily Load Analyses – The following TMDL analyses have been completed, are ongoing, or are scheduled to be completed in this watershed. Further information about the status of these investigations or a copy of the TMDL, if completed, can be obtained at ADEQ's website: www.azdeq.gov.

- Cave Creek, from its headwaters to the South Fork of Cave Creek, is impaired by selenium.
  Selenium, at the concentration found, may pose a risk to aquatic life and prey that feed on them, but does not pose a problem to humans even if they consume the fish. A selenium TMDL was initiated in 2006, as this water is classified as a "unique water" or an "outstanding Arizona water" where degradation of water quality is not allowed (i.e., Antidegradation Rule R18-11-107 tier 3 water).

- Blue River was found to be no longer impaired by turbidity based on a TMDL study in 2002.
  ADEQ showed that the lower Blue River, from KP Creek to the San Francisco River, was in compliance with its standards based on 10 years of samples -- 44 samples collected between 1992 through 2001.

- Gila River, upstream of the San Francisco River for 15 miles, is also impaired by selenium.
  Selenium, at the concentration found, may pose a risk to aquatic life and prey that feed on them, but does not pose a problem to humans even if they consume the fish. A selenium TMDL is scheduled to be initiated in 2006.

- Gila River, upstream of Bonita Creek confluence for 6 miles, is impaired by *Escherichia coli* bacteria and suspended sediment.
  Exceedances of the E. coli standard may represent a significant public health concern if people are swimming or even wading in the water. Suspended sediment may negatively impact aquatic communities. The drainage are is nearly 8,000 square miles, so determining the sources of contamination may be complex and is expected to require substantial monitoring data to identify sources. TMDLs are scheduled to be initiated in 2006.

- Luna Lake, near Alpine, is impaired by excess nutrient loading and frequently has not met dissolved oxygen or pH standards.
  Nutrient enrichment may lead to algal blooms, low dissolved oxygen, high pH, and even fish kills. A nutrient TMDL, approved in 2000, indicated that external inputs of nutrients (nitrogen and phosphorus) to the lake, along with current lake nutrient cycling (algae and macrophyte growth and die-offs), have resulted in a highly productive (eutrophic) system that repeatedly fails to meet surface water quality standards. To meet standards watershed management measures are aimed at reductions in nutrient loading from the following sources: septic systems, residential areas, grazing (livestock and wildlife), and macrophyte

decomposition. Reduction in sediment transport is also advised because nutrients are frequently attached to sediments. Several management measures have been initiated in this watershed and monitoring is scheduled to determine their effectiveness.

- San Francisco River, near Luna Lake, is impaired due to suspended sediment.
  Suspended sediment may negatively impact aquatic communities. A TMDL is scheduled to be initiated in 2009.

Water Quality Improvement Grant Projects – ADEQ awarded the following Water Quality Improvement Grants (319 Grants) in this watershed. More information concerning these grants or projects can be obtained at: http://www.azdeq.gov/environ/water/watershed/fin.html.

- **Alpine – Luna Lake Improvement Project**
  Apache County (2001)
  Dredge accumulated sediment and harvest weeds from Luna Lake to decrease nitrogen recycling. Collect water quality samples to help identify faulty septic systems. Provide financial assistance to repair or replace faulty septic systems.

- **Road Rehabilitation in San Simon Wash**
  Coronado Resource Conservation and Development Area (2001)
  Rehabilitate 14 miles of unimproved roads within the watershed using structures to decrease sediment entering the San Simon River. Provide educational materials concerning erosion and sediment controls.

- **Coal Creek Riparian Corridor**
  Apache-Sitgreaves National Forest Clifton Ranger District (2002)
  Restore a 2.5 mile, 265 acre, riparian corridor along Coal Creek. Construct fencing to exclude cattle and wildlife and revegetate using native plants. Site to be used for riparian education field trips for local schools.

- **Maylay Pasture Improvement**
  4 Drag Ranch (2002)
  Rehabilitate riparian area along East Eagle Creek and Robinson Creek by developing an alternative livestock watering source and adding fencing. (Water Protection Fund matching funds)

- **Martinez Ranch Water Quality Improvement Project**
  Hero Consulting (2002)
  Restore riparian conditions along the San Francisco River by fencing to exclude wildlife and cattle, revegetating, and installing erosion control structures. Develop an information kiosk to explain the project's goals and accomplishments.

- **Trees for the Rim Project (2003)**
  Arizona Community Tree Council
  Provide trees and other vegetation at no cost to those private property owners whose trees and landscape plants were destroyed during the Rodeo-Chediski fire in 2002. These actions are to help restore vegetation and thereby reduce runoff pollution.

- **Peterson Wash Stabilization Project**
  Gila Watershed Partnership (2004)
  Rehabilitate Peterson Wash to reduce erosion and sedimentation transport to the Gila River.

- **San Simon Soil Restoration Project**
  Gila Watershed Partnership (2004)
  Restore an area of eroded and unproductive land along the San Simon River by reducing animal impacts in the riparian area.

- **Point of Pines Crossing Rehabilitation Project**
  Gila Watershed Partnership (2004)
  Repair the Point of Pines gate and fencing to reduce stream bank erosion and sediment load caused by livestock, wildlife, and vehicles.

- **Central Detection Dam Rehabilitation Project**
  Gila Watershed Partnership (2005)
  Rehabilitate the Central Detection Dam, a 27-foot high earthen flood control dam built in 1948, which reduces erosion during heavy rainfall. Clean the spillway, remove debris and sediment, clear excessive vegetation in the outlet structure and emergency spillway, and repair damage caused by off-highway vehicles. A fence was installed as a vehicle deterrent, and signage was posted to provide education and outreach.

- **Kaler Ranch Erosion Control Project**
  Gila Watershed Partnership (2005 and 2006)
  Extend and improve road drainage culverts and construct stream bank protection structures along the roads in the San Francisco River drainage. Provide education and outreach for the community.

- **Gila River Clean Up Project**
  Gila Watershed Partnership (2006)
  Remove approximately 6,000 tons of illegally dumped debris along the Gila River.

- **Upper Eagle Creek Watershed Restoration Project**
  Upper Eagle Creek Watershed Partnership (2006)
  Construct fencing and provide alternative water sources for to exclude livestock from Eagle Creek. Apply intensive grazing management techniques such as rotational grazing to reduce erosion and sediment transport.

Water Protection Fund Projects – The following Water Protection Fund Projects were awarded by the Arizona Department of Water Resources. More information about these funds or projects can be obtained from the ADWR web site at: http//www.azwater.gov.

- **Gila Reference Riparian Area Discovery Park Project**
  Mount Graham International Science and Cultural Foundation (2000)
  Propagate native vegetation in a 65 acre area of this 125 acre scientific, historic, and cultural theme park. Continue exotic week eradication in the revegetation areas.

- **Upper Eagle Creek Restoration on Four Drag Ranch Project**
  4 Drag Ranch (2000)
  Rehabilitate the riparian area along East Eagle Creek and Robinson Creek by developing an alternative livestock watering source and adding fencing. Work completed in cooperation with the U.S. Forest Service. (Water Protection Fund matching funds)

- **Georges Lake Riparian Restoration Project**
  National Wild Turkey Federation (2005)
  Rehabilitate Georges Lake, a wet meadow, by fencing out cattle and livestock. Work in cooperation with the U.S. Forest Service, Alpine Ranger District

Other Water Quality Studies – The following additional water quality related studies were completed since 2000 in this watershed.

- ***A Watershed at a Watershed: The Potential for Environmentally Sensitive Area Protection in the Upper San Pedro Drainage Basin (Mexico and USA)***
  Frederick Steiner, Fohn Blair, Laurel McSherry, Subhrajit Guhathakurta, Juaquin Marruffo, Mathew Holm, ASU, School of Planning and Landscape Architecture, Landscape and Urban Planning 49 (2000) 129-148

In the upper San Pedro River rapid urbanization, cattle ranching, and irrigated agricultural pumping in the drainage basin are having negative environmental consequences, including water quality and supply problems, increased soil erosion, threats to wildlife habitats, and degradation of scenic resources. Copper mining, just outside the watershed, potentially impacts ground water and the San Pedro riparian system. This paper focuses on the design of a framework for the identification of environmentally sensitive areas in a watershed and an analysis of existing governmental plans to protect such areas.

- ***Watershed Based Plan for the Campomocho/Sacaton Watershed, a sub-watershed of the Willcox Playa in Southeastern Arizona***
  Campomocho/Sacaton Watershed Group (2002)
  A multi-partner local watershed group identified this area as a high priority focus area for watershed improvements. The primary land use is rangeland, with rural residences and farms just outside the area. Lands ownership is approximately: 85% state, 10% U.S. Forest Service, and 7% private land. Problems identified include soil erosion, poor soil condition, poor vegetative cover, excessive water runoff, sedimentation, reduced forage production, low plant diversity, impaired wildlife habitat, flood damages, and human health and safety concerns. The plan identified management practices that would improve watershed health and water quality.

- ***Walnut Gulch Experimental Watershed – Tombstone, Arizona***
  Southwest Watershed Research Center, USDA, Tucson (2003)
  The Walnut Gulch Experimental Watershed encompasses the 150 square kilometers that surrounds the historical western town of Tombstone in the upper San Pedro Watershed. Research is focused on quantifying the influence of upland conservation on downstream water supply (water appropriation questions) and water quality erosion and soil transport concerns in a normally dry river bed. Research was initiated in the 1950's. Information can be obtained by contacting the research leader at (520) 670-6380 or www.tucson.ars.ag.gov.

- ***Water Quality Data for Selected National Park Units, Southern and Central Arizona and West-Central New Mexico, Water Years 2003 and 2004***
  U.S. Geological Survey in cooperation with the National Park Service (2005)
  Field measurements and water samples were collected at springs, mine adits, streams, and wells at 30 sites in 9 park units in 2003-2004 to provide baseline (ambient) water quality information. Only 24 of the 30 sites were sampled three times due to drought conditions and lack of water during parts of the year.

- ***Status of Federal and State Listed Warm Water Fishes of the Gila River Basin, with Recommendations for Management***
  Desert Fishes Team Report Number 1 (2003)
  This report reviews the status of 12 federal and state listed native warm water fishes in the Gila River basin and the post 1967 recovery and conservation actions taken by all agencies, organizations, or parties.

- ***San Carlos/Safford/Duncan Watershed 10-year Plan***
  Advisory Group for the San Carlos/Safford/Duncan Watershed (currently the Gila Watershed Partnership)
  This plan provides a description of existing conditions and issues in the Upper Gila Watershed, describing on-going, future, and completed projects initiated by this watershed group.

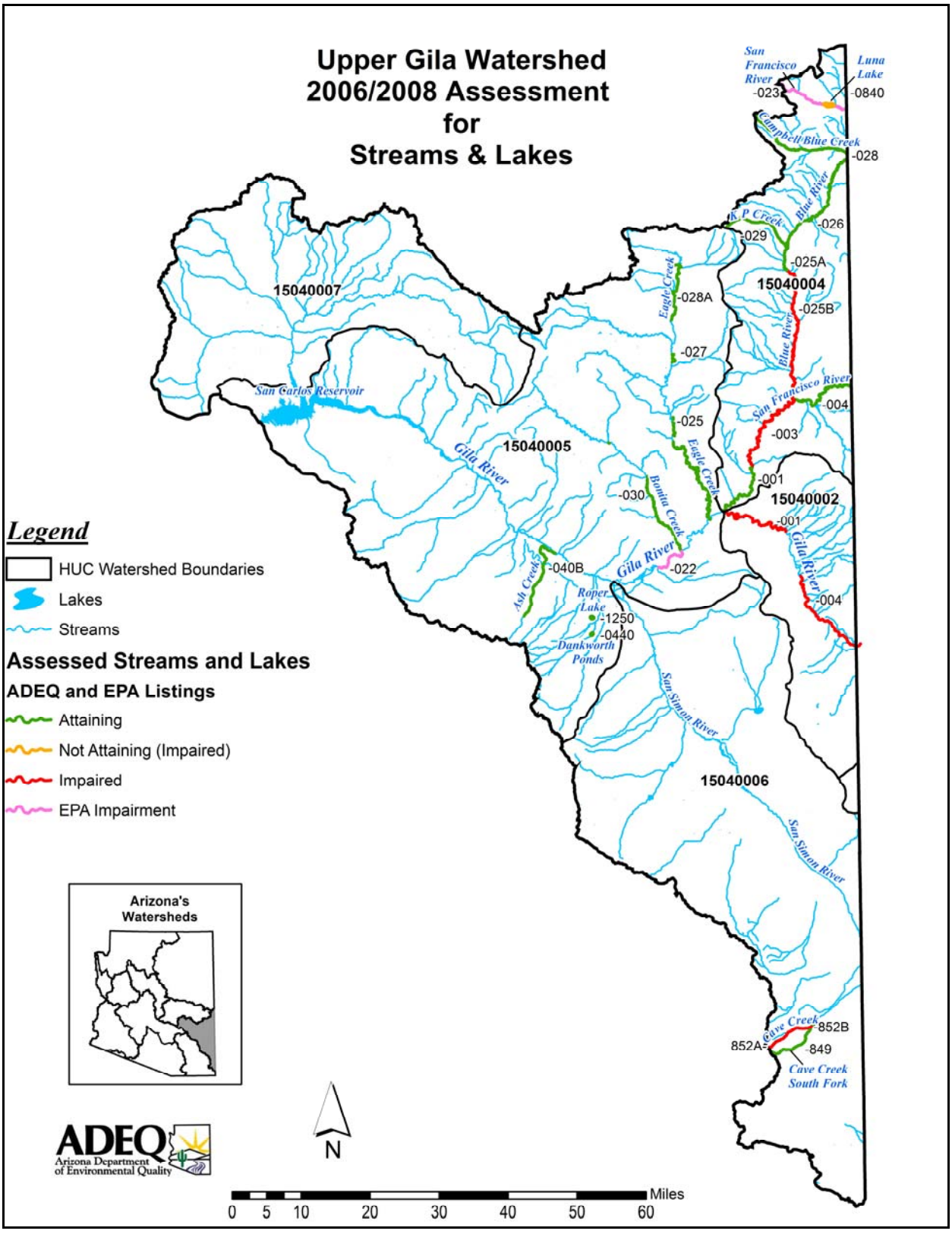
- ***Ambient Surface Water Quality for Rivers and Streams of the Upper Gila River Basin: Water Year 2000***
  Doug McCarty, Steve Pawlowski and Patti Spindler with ADEQ (2004)
  A regional study of ambient surface water quality of the Upper Gila River Watershed was conducted by ADEQ to characterize chemical and biological conditions based on chemical samples, field measurements, and macroinvertebrate bioassessments.

Assessments

The Santa Cruz Watershed can be separated into the following drainage areas (subwatersheds):

15040002	Mangus Creek Drainage Area
15040003	Animas Valley Drainage Area
15040004	San Francisco River Drainage Area
15040005	Upper Gila River Drainage Area
15040006	San Simon River Drainage Area
15040007	San Carlos River Drainage Area (Tribal Land – Not Assessed)

These drainage areas and the surface waters assessed as "attaining" or "impaired" are illustrated on the following watershed map. Methods used to complete these assessments are described in the "Surface Water Assessment Methods and Technical Support" document (2006).


Upper Gila Watershed
2006/2008 Assessment
for
Streams & Lakes
San Francisco River
-023
Luna Lake
-0840
Campbell Blue Creek
-028
Blue River
K P Creek
-029
-026
-025A
15040004
-025B
15040007
-028A
Eagle Creek
-027
San Carlos Reservoir
-025
San Francisco River
-004
-003
15040005
Gila River
Eagle Creek
-001
-030
Bonita Creek
15040002
-001
Gila River
Ash Creek
-040B
Gila River
-022
-004
Roper Lake
-1250
-0440
Dankworth Ponds
San Simon River
15040006
San Simon River
Cave Creek
852B
852A
-849
Cave Creek South Fork
Legend
HUC Watershed Boundaries
Lakes
Streams
Assessed Streams and Lakes
ADEQ and EPA Listings
Attaining
Not Attaining (Impaired)
Impaired
EPA Impairment
Arizona's Watersheds
ADEQ
Arizona Department of Environmental Quality
N
0 5 10 20 30 40 50 60
Miles

ASH CREEK From unnamed tributary at 234537 / 1095222 to Gila River 15040005 – 040B 14.7 Miles	USE SUPPORT	OVERALL ASSESSMENT	
	A&Ww – Attaining FBC – Attaining FC – Attaining AgL -- Attaining	Category 1 Attaining all uses	

MONITORING USED IN THIS ASSESSMENT				
SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING PERIOD: 03/16/2000 – 09/29/2005		
		NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
At end of Forest Road #307 UGA1H011.08 100830	ADEQ Ambient	3-4 total metals only: Antimony, arsenic, beryllium, cadmium, chromium, copper, and zinc. 4 total and 0-1 dissolved: Boron, manganese, lead, mercury	6 samples: Ammonia, dissolved oxygen, pH, total nitrogen, total phosphorus, nitrite/nitrate, total Kjeldahl nitrogen	5 *E. coli* bacteria 6 Fluoride 6 Total dissolved solids 6 Turbidity 4 Suspended sediment concentration

EXCEEDANCES			
POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
Dissolved oxygen	6.0 µg/L A&Ww	09/29/2005 – 3.7 mg/L	Attaining – Low dissolved oxygen due to natural conditions with low flow (0.004 cfs) and ground water source.

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS			
EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
	Collected all core parameters		Lab detection limits for selenium and dissolved metals (cadmium, copper, mercury, and zinc) were higher than the A&W chronic criteria in at least 1 sample.
MONITORING RECOMMENDATIONS		Low Priority – Use lower lab detection limit for selenium and dissolved metals.	

BLUE RIVER From New Mexico border to KP Creek 15040004 -- 026 21.4 Miles	USE SUPPORT	OVERALL ASSESSMENT	
	A&Wc – Inconclusive FBC – Attaining FC – Inconclusive AgI – Inconclusive AgL – Inconclusive	Category 2 Attaining some uses	

MONITORING USED IN THIS ASSESSMENT

SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING DATES: 06/13/2000, 09/19/2000, 08/17/2005, 10/26/2005 NUMBER AND TYPES OF SAMPLES Metals	Nutrients – Related	Other
Below Jackson Box UGBLR046.35 100419	ADEQ Ambient	1-2 total and dissolved metals samples: Antimony, arsenic, beryllium, cadmium, chromium, copper, lead, mercury, and zinc. 2 total only: Boron, manganese	3-4samples: Ammonia, total nitrogen, total phosphorus, nitrite/nitrate, total Kjeldahl nitrogen, dissolved oxygen and pH	4 *E. coli* bacteria 4 Fluoride 2 Suspended sediment concentration 4 Turbidity
Bobcat Flat UGBLR050.44 101184	ADEQ TMDL		4 Dissolved oxygen and pH samples at each of the 9 sites (36 samples)	4 turbidity 3 Suspended sediment concentration samples at each of the 9 sites
Lazy YJ Ranch UGBLR044.30 101185	ADEQ TMDL			
Below Nolan Creek UGBLR0043.45 101186	ADEQ TMDL			
Above Blue crossing UGBLR0042.52 101188	ADEQ TMDL			
Below Blue crossing UGBLR0041.37 101187	ADEQ TMDL			
Above Balke crossing UGBLR036.37 101189	ADEQ TMDL			
Below Balke crossing UGBLR036.02 101190	ADEQ TMDL			
Above Box UGBLR031.69 101191	ADEQ TMDL			
Below Box UGBLR030.77 101192	ADEQ TMDL			

EXCEEDANCES

POLLUTANT	STANDARD (UNIT) DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
Dissolved oxygen	7.0 mg/L A&Wc	06/13/2000 – 6.0 mg/L 08/17/2005 – 6.5 mg/L	Attaining – Only 2 samples did not meet criterion in 20 samples. (Binomial)

DATA GAPS AND MONITORING NEEDS

EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
	Missing metals needed to assess A&W, FC, AgI, and AgL		Lab detection limit for selenium was higher than A&Ww chronic criteria.
MONITORING RECOMMENDATIONS		Low Priority: Collect missing core parameters to represent at least 3 seasons. Use lower lab detection limits for selenium.	

BLUE RIVER From KP Creek to Strayhorse Creek 15040004 – 025A 3.8 Miles	USE SUPPORT	OVERALL ASSESSMENT	
	A&Wc – Inconclusive FBC – Attaining FC – Inconclusive AgI – Inconclusive AgL – Inconclusive	Category 2 Attaining some uses	

MONITORING USED IN THIS ASSESSMENT

SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING PERIOD: 03/29/2000 – 10/25/2005 NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
Below KP Creek UGBLR028.99 100835	ADEQ Ambient	1-2 total and dissolved metals samples: Antimony, arsenic, beryllium, cadmium, chromium, copper, lead, mercury, and zinc. 2 total metals only: Boron, manganese	2-3 samples: Ammonia, total nitrogen, total phosphorus, nitrite/nitrate, total Kjeldahl nitrogen, dissolved oxygen, and pH	4 *E. coli* bacteria 4 Fluoride 4 Total dissolved solids 2 Suspended sediment concentration 2 Turbidity

EXCEEDANCES

POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
No Exceedances			

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS

EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
	Insufficient metal samples to assess FC, AgI, AgL	Only two seasons were represented by samples	Lab detection limit for selenium was higher than A&Ww chronic criteria.
MONITORING RECOMMENDATIONS		Low Priority: Collect missing core parameters to represent at least 3 seasons during the assessment period. Use lower lab detection limits for selenium.	

BLUE RIVER From Strayhorse Creek to San Francisco River 15040004 – 025B 25.4 Miles	USE SUPPORT	OVERALL ASSESSMENT	POLLUTANTS CAUSING IMPAIRMENT	IMPAIRMENT STATUS
	A&Ww – Inconclusive FBC – Impaired FC – Attaining AgI – Attaining AgL – Attaining	Category 5 Impaired	*E. coli* bacteria	Add *E. coli* bacteria to the 303(d) List.

MONITORING USED IN THIS ASSESSMENT

SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING PERIOD: 03/28/2000 – 10/25/2005 NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
Above Fritz Ranch UGBLR011.55 100835	ADEQ TMDL	4-24 total and dissolved metals samples: Antimony, arsenic, barium, beryllium, cadmium, chromium, copper, lead, mercury, nickel, silver, thallium, and zinc. 23 total only: Boron, manganese	23 samples: Ammonia, total nitrogen, total phosphorus, nitrite/nitrate, total Kjeldahl nitrogen, dissolved oxygen, and pH	20 *E. coli* bacteria 23 Fluoride 21 Total dissolved solids 18 Suspended sediment concentration 24 Turbidity
At Juan Miller Road UGBLR008.19 100398	ADEQ Ambient			
Near Clifton, AZ USGS #09444200 UGBLR008.09 100770	USGS Ambient ADEQ TMDL			

EXCEEDANCES

POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
E. coli bacteria	235 CFU/100 ml FBC	07/28/2004 – 14400 CFU/100 ml 10/27/2004 – 750 CFU/100 ml 08/09/2005 – 620 CFU/100 ml	Impaired -- Three exceedances during the assessment period (out of 20 samples).
Suspended sediment concentration (SSC)	Geometric mean 80 mg/L A&Ww	07/28/2004 – 2700 mg/L 10/27/2004 – 92 mg/L 03/02/2005 – 93 mg/L 08/29/2005 – 109 mg/L	Inconclusive -- 4 of 18 samples exceeded 80 mg/L. One of the results was not included in the geometric mean calculation, because flows were above the 85th percentile of recorded flow (93 mg/L). Using the remaining 17 samples, the geometric mean exceeded 80 mg/L one time. (Two exceedances of the geometric mean are required to list as impaired.)

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS

EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
Suspended sediment concentration (SSC)	Collected all core parameters		Lab detection limits for selenium and dissolved metals (cadmium, copper, lead, mercury, and zinc) were higher than A&Ww chronic criteria in at least 1 sample.
MONITORING RECOMMENDATIONS		Medium Priority: Collect additional SSC samples due to exceedances. Note that the old turbidity standard (50 NTU) was also exceeded in 2 of 24 field turbidity samples (>999 and 79 NTU). Recommend using biocriteria assessments and bottom deposits implementation procedures in this reach, when they are adopted Use lower lab detection limits for selenium and dissolved metals.	

BONITA CREEK From Park Creek to Gila River 15040005 – 030 14.6 Miles Unique Water	USE SUPPORT	OVERALL ASSESSMENT	
	A&Ww – Attaining FBC – Attaining FC – Attaining DWS – Attaining AgL – Attaining	Category 1 Attaining all uses	

MONITORING USED IN THIS ASSESSMENT				
SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING PERIODS: 01/11/2000 – 05/14/2002; 09/28/2005-12/13/2005		
		NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
Below San Carlos Apache Reservation UGBON014.47 100188	ADEQ Ambient	7 total and dissolved metals samples: Antimony, arsenic, beryllium, cadmium, chromium, copper, lead, and zinc. 4-7 total and 0-1dissolved: Barium, boron, manganese, mercury, nickel, silver, thallium.	11 samples: Ammonia, dissolved oxygen, pH, total nitrogen, total phosphorus, nitrite/nitrate, total Kjeldahl nitrogen	9 *E. coli* bacteria 11 Fluoride 11 Total dissolved solids 1 Suspended sediment concentration 11 Turbidity
Above Gila River UGBON000.17 100185	ADEQ Ambient			

EXCEEDANCES			
POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
No Exceedances			

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS			
EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
	Collected all core parameters		Lab detection limits for selenium and dissolved mercury were higher than A&Ww chronic criteria.
MONITORING RECOMMENDATIONS		Low Priority: Use lower lab detection limits for selenium and dissolved mercury.	

CAMPBELL BLUE RIVER From headwaters to Blue River 15040004 – 028 19.7 Miles	USE SUPPORT	OVERALL ASSESSMENT	
	A&Wc – Attaining FBC – Attaining FC – Attaining AgL – Attaining	Category 1 Attaining all uses	

MONITORING USED IN THIS ASSESSMENT

SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING PERIOD: 03/28/2000 – 08/28/2001; and 08/16/2005 – 10/26/2005 NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
Above KE Canyon UGCMB004.23 100522	ADEQ Ambient	3-4 total and dissolved metals samples: Antimony, arsenic, beryllium, cadmium, chromium, copper, lead, mercury, and zinc. 4 total and 1-2 dissolved: Chromium, mercury 1-2 total and dissolved samples: Barium, nickel, silver, thallium.	4 samples: Ammonia, total nitrogen, total phosphorus, nitrite/nitrate, total Kjeldahl nitrogen 11-17 samples: Dissolved oxygen and pH	4 *E. coli* bacteria 5 Fluoride 5 Total dissolved solids 2 Suspended sediment concentration 17 Turbidity
Above Turkey Creek UGCMB002.62 101181	ADEQ TMDL			
Below Turkey Creek UGCMB001.83 101182	ADEQ TMDL			
Above Dry Blue Creek UGCMB000.49 101183	ADEQ TMDL			

EXCEEDANCES

POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
Dissolved oxygen	7.0 mg/L A&Wc	07/17/2001 – 5.5 mg/L 08/28/2001 – 6.4 mg/L	Attaining – Low dissolved oxygen results due to natural conditions with ground water upwelling, drought conditions, and very low flows (less than 0.5 cfs).

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS

EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
	Collected all core parameters		Lab detection limits for selenium and dissolved mercury were higher than A&Ww chronic criteria.
MONITORING RECOMMENDATIONS		Low Priority: Use lower lab detection limits for selenium and dissolved mercury.	

CAVE CREEK From headwaters to South Fork Cave Creek 15040006 – 852A 7.5 Miles Unique Water	USE SUPPORT		OVERALL ASSESSMENT	POLLUTANTS CAUSING IMPAIRMENT	IMPAIRMENT STATUS
	A D E Q	A&Wc – Impaired FBC – Attaining FC – Attaining AgI – Attaining AgL – Attaining	Category 5 Impaired	Selenium	Selenium listed in 2004.

MONITORING USED IN THIS ASSESSMENT				
SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING PERIOD: 01/24/2000 – 05/29/2002; and 08/30/2005 – 11/09/2005		
		NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
Above Herb Martyr Campground UGCAV016.84 101108	ADEQ Ambient	4-9 total and dissolved metals: Antimony, arsenic, barium, beryllium, cadmium, chromium, copper, lead, nickel, silver, thallium, and zinc. 4-6 total metals only: Boron, manganese, mercury 1 Selenium	10-12 samples: Ammonia, dissolved oxygen, pH, total nitrogen, total phosphorus, nitrite/nitrate, total Kjeldahl nitrogen	10 *E. coli* bacteria 10 Fluoride 12 Total dissolved solids 1 Suspended sediment concentration 11 Turbidity
Below North Fork Cave Creek UGCAV-014.44 100933	ADEQ Ambient			

EXCEEDANCES			
POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
Selenium	2.0 µg/L A&Wc chronic	01/24/2000 – 6.7 µg/L	Inconclusive – 1 exceedance in this assessment period. Because the lab detection limit (5 µg/L) is higher than the standard (2 µg/L), the other selenium samples collected could not be used to determine attainment.

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS			
EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
	Collected all core parameters		Lab detection limits for selenium and dissolved mercury were higher than the A&W chronic criteria.
MONITORING RECOMMENDATIONS		High Priority – Collect selenium samples to support development of a TMDL. Use lower lab detection limit for selenium and dissolved mercury.	

CAVE CREEK From South Fork Cave Creek to Coronado National Forest boundary 15040006 – 852B 1.5 Miles Unique Water	USE SUPPORT	OVERALL ASSESSMENT	
	A&Ww – Attaining FBC – Attaining FC – Attaining AgI – Attaining AgL – Attaining	Category 1 Attaining all uses	

MONITORING USED IN THIS ASSESSMENT

SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING PERIOD: 04/25/2000 – 12/12/2001 NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
Below Coronado Ranger Station UGCAV011.45 100937	ADEQ Ambient	3-4 total and dissolved metals: Antimony, arsenic, barium, beryllium, cadmium, copper, and zinc. 4 total 0-2 dissolved metals: Barium, boron, chromium, lead, manganese, mercury, nickel, silver, thallium,	5 samples: Ammonia, dissolved oxygen, pH, total nitrogen, total phosphorus, nitrite/nitrate, total Kjeldahl nitrogen	5 *E. coli* bacteria 5 Fluoride 5 Total dissolved solids 5 Turbidity

EXCEEDANCES

POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
No Exceedances			

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS

EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
	Collected all core parameters		Lab detection limits for selenium and dissolved mercury were higher than the A&W chronic criteria.
MONITORING RECOMMENDATIONS		Low Priority –Use lower lab detection limit for selenium and dissolved mercury.	

CLUFF RANCH POND #3 15040005 – 0370 15 Acres	USE SUPPORT	OVERALL ASSESSMENT	
	A&Ww – Inconclusive FBC – Inconclusive FC – Inconclusive AgI – Inconclusive AgL – Inconclusive	Category 3 Inconclusive	

MONITORING USED IN THIS ASSESSMENT

SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING DATES: 03/03/2004 NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
At Dam UGCRC-A 102755	AGFD Ambient	1 total metals only: Copper, mercury	1 sample: Dissolved oxygen, pH, total nitrogen, total phosphorus, nitrite/nitrate, total Kjeldahl nitrogen	0 *E. coli* bacteria 1 Fluoride 1 Total dissolved solids 1 Turbidity

EXCEEDANCES

POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
No Exceedances			

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS

EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
	Insufficient core parameters	Insufficient sampling events	Lab detection limit for mercury was higher than the A&W chronic criteria.
MONITORING RECOMMENDATIONS		Low Priority – Collect missing core parameters to represent at least 3 seasons during the assessment period. Use lower lab detection limit for mercury.	

COLEMAN CREEK From headwaters to Campbell Blue Creek 15040004 – 040 7.3 Miles	USE SUPPORT	OVERALL ASSESSMENT	
	A&Wc – Inconclusive FBC – Inconclusive FC – Inconclusive AgL – Inconclusive	Category 3 Inconclusive	

MONITORING USED IN THIS ASSESSMENT

SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING DATES: 08/16/2005 NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
Below Turkey Creek UGCOL003.48 100523	ADEQ Ambient	1 total and dissolved metal samples: Antimony, arsenic, beryllium, cadmium, chromium, copper, lead, mercury, and zinc. 1 total metals only: Boron, manganese	1 sample: Dissolved oxygen, pH, total nitrogen, total phosphorus, nitrite/nitrate, total Kjeldahl nitrogen	1 *E. coli* bacteria 1 Fluoride 1 Total dissolved solids 1 Suspended sediment concentration 1 Turbidity

EXCEEDANCES

POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
No Exceedances			

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS

EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
	Insufficient core parameters	Insufficient sampling events	Lab detection limit for selenium was higher than the A&W chronic criteria.
MONITORING RECOMMENDATIONS		Low Priority – Collect missing core parameters to represent at least 3 seasons during the assessment period. Use lower lab detection limits for selenium.	

DANKWORTH PONDS 15040006 – 0440 8 Acres	USE SUPPORT	OVERALL ASSESSMENT	
	A&Wc – Inconclusive FBC – Inconclusive FC – Attaining	Category 2 Attaining some uses	

MONITORING USED IN THIS ASSESSMENT

SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING PERIOD: 02/15/2000 – 12/22/2000; and 03/03/2004 NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
At Dam UGDAN-A 100018	ADEQ Ambient	3-5 total metals only: Arsenic, barium, beryllium, boron, cadmium, chromium, copper, lead, manganese, mercury, and zinc. 1 total: Selenium, nickel	3-7 samples: Dissolved oxygen, pH, total nitrogen, total phosphorus, nitrite/nitrate, total Kjeldahl nitrogen	6 Fluoride 7 Total dissolved solids 2 Turbidity
At Pond UGDAN-POND 100988	ADEQ Ambient			

EXCEEDANCES

POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
Selenium	20 µg/L – A&Wc acute	08/20/2000 – 25 µg/L	Inconclusive –Only 1 sample exceeded the criterion. Very high magnitude of concentration. Because the lab detection limits in 3 other samples were higher than standard, they so could not be used to determine attainment.

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS

EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
Selenium	Insufficient dissolved metals and *E. coli* bacteria to assess A&W and FBC		Lab detection limits for selenium were higher than the A&W chronic criteria.
MONITORING RECOMMENDATIONS		Medium Priority – Collect selenium data due to the exceedance. Use lower lab detection limit for selenium. Collect missing core parameters to represent at least 3 seasons during the assessment period.	

DIX CREEK From headwaters to San Francisco River 15040004 – 1575 2.3 Miles	USE SUPPORT	OVERALL ASSESSMENT	
	A&Ww – Inconclusive FBC – Inconclusive FC – Inconclusive	Category 3 Inconclusive	

MONITORING USED IN THIS ASSESSMENT

SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING DATES: 08/08/2005 – 11/02/2005		
		NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
Above diversion dam UGDIX000.78 103416	ADEQ Ambient	2 total and dissolved metals sample: Antimony, arsenic, beryllium, boron, cadmium, copper, lead, mercury, and zinc. 2 total metals only: Boron, chromium, manganese, selenium	2 samples: Dissolved oxygen, pH, total nitrogen, total phosphorus, nitrite/nitrate, total Kjeldahl nitrogen	1 *E. coli* bacteria 2 Fluoride 2 Total dissolved solids 2 Suspended sediment concentration 2 Turbidity

EXCEEDANCES

POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
No Exceedances			

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS

EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
	Insufficient core parameters	Insufficient sampling events	
MONITORING RECOMMENDATIONS		Low Priority – Collect missing core parameters to represent at least 3 seasons during the assessment period.	

EAGLE CREEK From headwaters to tributary at 332324 / 1092935 15040005 – 028A 11.8 Miles	USE SUPPORT	OVERALL ASSESSMENT	
	A&Ww – Attaining FBC – Attaining FC – Attaining DWS – Attaining AgI – Attaining AgL – Attaining	Category 1 Attaining all uses	

MONITORING USED IN THIS ASSESSMENT				
SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING PERIOD: 01/12/2000 – 07/25/2000; 08/09/2005 – 11/01/2005		
		NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
Above Honeymoon Campground UGEAG056.85 100535	ADEQ Ambient	3 total and dissolved metals samples: Antimony, arsenic, beryllium, cadmium, copper, lead and zinc. 3 total and 0-2 dissolved: Boron, chromium, manganese, mercury 1 dissolved and total metal: Barium, nickel, silver, thallium.	5 samples: Ammonia, dissolved oxygen, pH, total nitrogen, total phosphorus, nitrite/nitrate, total Kjeldahl nitrogen	4 *E. coli* bacteria 5 Fluoride 5 Total dissolved solids 2 Suspended sediment concentration 3 Turbidity

EXCEEDANCES			
POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
No Exceedances			

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS			
EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
	Collected all core parameters		Lab detection limits for selenium and dissolved mercury were higher than A&Ww chronic criteria.
MONITORING RECOMMENDATIONS		Low Priority: Use lower lab detection limits for selenium and dissolved mercury.	

EAGLE CREEK From Willow Creek to Sheeps Wash 15040005 – 027 5.8 Miles	USE SUPPORT	OVERALL ASSESSMENT	
	A&Ww – Attaining FBC – Attaining FC – Attaining DWS -- Attaining AgI – Attaining AgL – Attaining	Category 1 Attaining all uses	

MONITORING USED IN THIS ASSESSMENT				
SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING PERIOD: 01/12/2000 – 11/01/2005		
		NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
Above Sheeps Wash UGEAG040.33 100536	ADEQ Ambient	3-7 total and dissolved metals samples: Antimony, arsenic, beryllium, cadmium, chromium, copper, and zinc. 7 total and 2 dissolved: Mercury 1 total and dissolved: Barium, nickel, silver, thallium.	9 samples: Ammonia, dissolved oxygen, pH, total nitrogen, total phosphorus, nitrite/nitrate, total Kjeldahl nitrogen	8 *E. coli* bacteria 9 Fluoride 9 Total dissolved solids 6 Suspended sediment concentration 9 Turbidity

EXCEEDANCES			
POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
No Exceedances			

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS			
EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
	Collected all core parameters		Lab detection limits for selenium and dissolved mercury were higher than A&Ww chronic criteria.
MONITORING RECOMMENDATIONS		Low Priority: Use lower lab detection limits for selenium and dissolved mercury.	

EAGLE CREEK From Sheeps Wash to Gila River 15040005 – 025 41.8 Miles	USE SUPPORT	OVERALL ASSESSMENT	
	A&Ww – Attaining FBC – Attaining FC – Attaining DWS -- Attaining AgI – Attaining AgL – Attaining	Category 1 Attaining all uses	

MONITORING USED IN THIS ASSESSMENT

SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING PERIOD: 01/11/2000 – 05/19/2003 NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
Below Gold Gulch UGEAG010.12 100806	ADEQ Ambient	4 total and dissolved metals samples: Antimony, arsenic, beryllium, cadmium, chromium, copper, and zinc. 4 total and 0-1 dissolved: Boron, lead, manganese, mercury 1 total and dissolved: Barium, nickel, silver, thallium.	6 samples: Ammonia, dissolved oxygen, pH, total nitrogen, total phosphorus, nitrite/nitrate, total Kjeldahl nitrogen	4 *E. coli* bacteria 6 Fluoride 6 Total dissolved solids 3 Suspended sediment concentration 6 Turbidity

EXCEEDANCES

POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
No Exceedances			

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS

EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
	Collected all core parameters		Lab detection limits for selenium and dissolved mercury were higher than A&Ww chronic criteria.
MONITORING RECOMMENDATIONS		Low Priority: Use lower lab detection limits for selenium and dissolved mercury.	

EAST TURKEY CREEK From headwaters to terminus (San Simon Wash drainage) 15040006 – 837A 7.8 Miles	USE SUPPORT	OVERALL ASSESSMENT	
	A&Wc – Inconclusive FBC – Inconclusive FC – Inconclusive AgL -- Inconclusive	Category 3 Inconclusive	

MONITORING USED IN THIS ASSESSMENT

SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING DATES: 08/30/2005, 11/08/2005 NUMBER AND TYPES OF SAMPLES Metals	Nutrients – Related	Other
Above Forest Road #42 UGETK011.80 100545	ADEQ Ambient	1 total and dissolved metal samples: Antimony, arsenic, beryllium, cadmium, and zinc. 1 total metals only: Boron, chromium, copper, lead, manganese, mercury,	1-2 samples: Ammonia, dissolved oxygen, pH, total nitrogen, total phosphorus, nitrite/nitrate, total Kjeldahl nitrogen	2 *E. coli* bacteria 1 Fluoride 1 Total dissolved solids 1 Suspended sediment concentration. 2 Turbidity

EXCEEDANCES

POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
No Exceedances			

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS

EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
	Insufficient core parameters	Insufficient monitoring events	Lab detection limits for selenium and dissolved metals (copper, lead, and mercury) were higher than the A&W chronic criteria.
MONITORING RECOMMENDATIONS		Low Priority – Use lower lab detection limit for selenium and dissolved metals. Collect missing core parameters to represent at least 3 seasons during the assessment period.	

FRYE CANYON CREEK From headwaters to Frye Mesa Reservoir 15040005 – 988A 5.0 Miles	USE SUPPORT	OVERALL ASSESSMENT	
	A&Wc – Inconclusive FBC – Inconclusive FC – Inconclusive DWS – Inconclusive AgL – Inconclusive	Category 3 Inconclusive	

MONITORING USED IN THIS ASSESSMENT

SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING DATES: 03/14/2000, 09/27/2000, 09/29/2005		
		NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
At Forest Road #36 UGFRY009.52 100720	ADEQ Ambient	1 total and dissolved metal samples: Antimony, arsenic, beryllium, cadmium, copper, lead, mercury, and zinc. 1 total metals only: Boron, chromium, manganese	3 samples: Ammonia, dissolved oxygen, pH, total nitrogen, total phosphorus, nitrite/nitrate, total Kjeldahl nitrogen	2 *E. coli* bacteria 3 Fluoride 3 Total dissolved solids 1 Suspended sediment concentration. 3 Turbidity

EXCEEDANCES

POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
No Exceedances			

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS

EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
	Insufficient core parameters	Insufficient monitoring events	Lab detection limits for selenium, were higher than the A&W chronic criteria.
MONITORING RECOMMENDATIONS		Low Priority – Collect missing core parameters to represent at least 3 seasons during an assessment period. Use lower lab detection limit for selenium.	

GILA RIVER From New Mexico border to Bitter Creek 15040002 – 004 16.3 Miles	USE SUPPORT	OVERALL ASSESSMENT	POLLUTANTS CAUSING IMPAIRMENT	IMPAIRMENT STATUS
	A&Ww – Impaired FBC – Impaired FC – Attaining AgI – Attaining AgL – Attaining	Category 5 Impaired	Suspended sediment concentration (SSC) and *E. coli* bacteria	Add both SSC and *E. coli* bacteria

MONITORING USED IN THIS ASSESSMENT

SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING PERIOD: 03/15/2000 – 11/30/2005 NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
Near Duncan UGGLR505.96 USGS #09442000 103656	USGS Ambient	10-15 total and dissolved metals samples: Antimony, arsenic, beryllium, boron, cadmium, chromium, copper, lead, manganese, mercury, and zinc. 1-2 total: Barium, nickel, selenium, silver, thallium.	16-19 samples: Ammonia, dissolved oxygen, pH, total nitrogen, total phosphorus, nitrite/nitrate, total Kjeldahl nitrogen	16 *E. coli* bacteria 16 Fluoride 18 Total dissolved solids 11 Suspended sediment concentration 19 Turbidity

EXCEEDANCES

POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
Copper	500 µg/L – AgL 1300 µg/L – FBC	07/27/2004 – 2800 µg/L	Attaining – Standard was exceeded only once in 12 samples. (Binomial)
Copper (dissolved)	47.3 µg/L at 360 mg/L hardness A&Ww chronic	05/15/2000 – 170 µg/L	Inconclusive – Only 1 exceedance during the assessment period
E. coli bacteria	235 CFU/100 ml FBC	07/28/2004 – 828 CFU/100 ml 10/27/2004 – 5700 CFU/100 ml	Impaired – 2 exceedances in a 3-year period. Results above than the 300 CFU/100 ml screening value.
Lead	15 µg/L – FBC 100 µg/L – AgL	07/28/2004 – 280 µg/L 10/27/2004 – 210 µg/L	Attaining – Only 2 exceedances in 12 samples. (Binomial)
Suspended sediment concentration (SSC)	Geometric mean 80 mg/L A&Ww	11/03/2003 – 92 mg/L – 15 cfs 02/09/2004 – 123 mg/L – 92 cfs* 07/27/2004 – 4560 mg/L – 70 cfs 10/27/2004 – 9400 mg/L – 67 cfs 03/01/2005 – 630 mg/L – 2000 cfs* 05/23/2005 – 85 mg/L – 87 cfs*	Impaired – 6 of 13 samples exceeded 80 mg/L. Three of the results (*) were not included in the geometric mean calculation, because flows were above the 50 Percentile of recorded flow (78 cfs). Using the remaining 10 samples, the geometric mean exceeded 80 mg/L two times.

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS

EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
	Collected all core parameters		
MONITORING RECOMMENDATIONS		High Priority: Collect SSC and *E. coli* bacteria data to support development of TMDLs. Note that the old turbidity standard (50 NTU) was also exceeded in 7 of 12 field turbidity samples. Recommend using biocriteria assessments and bottom deposits implementation procedures in this reach, when they are adopted.	

GILA RIVER From Skully Creek to San Francisco River 15040002 – 001 15.2 Miles	USE SUPPORT	OVERALL ASSESSMENT	POLLUTANTS CAUSING IMPAIRMENT	IMPAIRMENT STATUS
	A&Ww – Impaired FBC – Inconclusive FC – Attaining AgI – Attaining AgL -- Attaining	Category 5 Impaired	Selenium	Added selenium in 2004

MONITORING USED IN THIS ASSESSMENT				
SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING PERIOD: 03/13/2000 – 11/29/2005		
		NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
Above Safford Bridge UGGLR471.49 100809	ADEQ Ambient	10-15 total and dissolved metals samples: Antimony, arsenic, beryllium, boron, cadmium, chromium, copper, lead, manganese, mercury, and zinc. 1-2 total: Barium, nickel, selenium, silver, thallium.	16-19 samples: Ammonia, dissolved oxygen, pH, total nitrogen, total phosphorus, nitrite/nitrate, total Kjeldahl nitrogen	16 *E. coli* bacteria 16 Fluoride 18 Total dissolved solids 11 Suspended sediment concentration 19 Turbidity

EXCEEDANCES			
POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
Copper (dissolved)	15.9 µg/L at 140 mg/L hardness A&Ww acute	05/13/2003 – 98 µg/L	Inconclusive – One exceedance during the assessment period. Total copper in this sample was reported as <10 µg/L; therefore, this dissolved copper result has low reliability.
Dissolved oxygen	6.0 mg/L A&Ww	08/02/2002 – 5.6 mg/L	Attaining – Standard was not met only once in 17 samples. (Binomial)
E. coli bacteria	235 CFU/100 ml FBC	07/26/2004 – 4300 CFU/100 ml	Inconclusive – One exceedance during the last 3 years of monitoring.
Lead	15 µg/L – FBC 100 µg/L – AgL	8/12/2002 – 110 µg/L 7/26/04 – 79 µg/L	Attaining – Only 2 exceedances in 16 samples. (Binomial)
Selenium	2 µg/L A&Ww chronic	08/12/2002 – 7 µg/L 10/30/2002 – 5 µg/L	Remains impaired -- 2 exceedances in a 3-year period. (Lab detection limits in 16 other samples were higher than standard, so could not be considered for this assessment.)
Suspended sediment concentration	Geometric mean 80 mg/L A&Ww	02/10/2004 – 113 mg/L – 110 cfs 07/26/2004 – 17,200 mg/L – 175 cfs 03/03/2005 – 672 mg/L – 1100 cfs 08/04/2005 – 323 mg/L – 36 cfs	Inconclusive – 4 of 11 samples exceeded 80 mg/L. Normal flow data was not available at this site; therefore, a geometric mean of at least 4 consecutive SSC readings at normal flow could not be calculated. (Note that the old turbidity standard (50 NTU) was also exceeded in 6 of 16 field turbidity samples.)

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS			
EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	**MISSING CORE PARAMETERS**	**MISSING SEASONAL DISTRIBUTION**	**DETECTION LIMITS NOT LOW ENOUGH**
E. coli bacteria, dissolved copper, and suspended sediment concentration	**Collected all core parameters**		Lab detection limits for selenium were higher than the A&W chronic criteria.
MONITORING RECOMMENDATIONS		High Priority: Collect selenium data to support development of a TMDL. Collect dissolved copper, suspended sediment concentration, and *E. coli* bacteria data due to exceedances. Recommend using biocriteria assessments and bottom deposits implementation procedures in this reach, when they are adopted Use lower lab detection limit for selenium.	

GILA RIVER From Bonita Creek to Yuma Wash 15040005 – 022 5.8 Miles	USE SUPPORT		OVERALL ASSESSMENT	POLLUTANTS CAUSING IMPAIRMENT	IMPAIRMENT STATUS
	A D E Q	A&Ww – Inconclusive FBC – Impaired FC – Attaining AgI – Attaining AgL – Attaining	Category 5 Impaired	*E. coli* bacteria	Added *E. coli* bacteria in 2004.
	E P A	A&Ww – Impaired	Category 5 Impaired	Sediment	EPA added sediment in 2004.

Light blue highlights indicate EPA impairments based on EPA assessment and listing criteria. This listing may change when EPA reviews and approves the 2006/2008 impaired waters list. Such listings do not satisfy requirements established in ADEQ's Impaired Water Identification Rule; therefore, they are not included in the list of ADEQ's Impaired waters (Appendix B and Appendix C).

MONITORING USED IN THIS ASSESSMENT				
SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING PERIOD: 08/30/2000 – 08/11/2004 NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
Above Bonita Creek UGGLR452.43 100814	ADEQ Ambient	18-20 total and dissolved metals samples: Antimony, arsenic, barium, beryllium, boron, cadmium, chromium, copper, lead, manganese, mercury, nickel, selenium, silver, thallium, and zinc.	19-20 samples: Ammonia, dissolved oxygen, pH, total nitrogen, total phosphorus, nitrite/nitrate, total Kjeldahl nitrogen	19 *E. coli* bacteria 1 Fluoride 1 Total dissolved solids 20 Suspended sediment concentration 19 Turbidity
At head of Safford Valley USGS #0948500 UGGLR448.61 100729	USGS Ambient			

EXCEEDANCES			
POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
Copper (dissolved)	7.7 µg/L at 177 mg/L hardness A&Ww chronic	10/13/2000 – 9 µg/L	Attaining – Only 1 exceedance during the assessment period.
E. coli bacteria	235 CFU/100 ml FBC	08/30/2000 – 2300 CFU/100 ml 10/13/2000 – 2100 CFU/100 ml 08/11/2004 – 350 CFU/100 ml	Remains impaired -- 3 exceedances during the assessment period.
Lead	15 µg/L FBC	08/30/2000 – 94 µg/L 10/13/2000 – 46 µg/L 08/11/2004 – 20.2 µg/L	Attaining – Only 3 exceedances in 20 samples. (Binomial)
Suspended sediment concentration (SSC)	Geometric mean 80 mg/L A&Ww	08/30/2000 – 6410 mg/L – 334 cfs* 10/13/2000 – 3060 mg/L – 3220 cfs* 03/28/2001 – 88 mg/L – 578 cfs* 09/06/2001 – 197 mg/L – 149 cfs 08/22/2002 – 579 mg/L – 103 cfs 03/27/2003 – 150 mg/L – 628 cfs* 09/10/2003 – 473 mg/L – 74 cfs 03/28/2004 –313 mg/L – 545 cfs* 08/11/2004 – 884 mg/L – 162 cfs	Inconclusive -- 9 of 20 samples exceeded 80 mg/L. Five of the results (*) were not included in the geometric mean calculation, because flows were above the 50th Percentile of recorded flow (176 cfs). Using the remaining 15 results, the geometric mean exceeded 80 mg/L 1 time.

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

<table>
<tr><th colspan="4">DATA GAPS AND MONITORING NEEDS</th></tr>
<tr><th>EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS</th><th>MISSING CORE PARAMETERS</th><th>MISSING SEASONAL DISTRIBUTION</th><th>DETECTION LIMITS NOT LOW ENOUGH</th></tr>
<tr><td></td><td>Collected all core parameters</td><td></td><td>Lab detection limits for dissolved mercury were higher than A&Ww chronic criteria.</td></tr>
<tr><td colspan="2">DISCUSSION OF SUSPENDED SEDIMENT IMPAIRMENT</td><td colspan="2">Evidence of potential sediment impairment:
1. Only exceeded geometric mean standard once (using a minimum of 4 consecutive samples, and excluding data collected during higher flows);
2. During higher flows, suspended sediments were measured as high as 6410 mg/L; and
3. Suspended sediment routinely exceeds the 80 mg/L criteria (9 of 20 samples), which seems to indicate a high level of sediment transport.</td></tr>
<tr><td colspan="2">MONITORING RECOMMENDATIONS</td><td colspan="2">High Priority: Collect suspended sediment and E. coli data to support development of TMDLs.

Note that the old turbidity standard (50 NTU) was also exceeded in 7 of 19 field turbidity samples. Recommend using biocriteria assessments and bottom deposits implementation procedures in this reach, when they are adopted.

Use lower lab detection limits for dissolved mercury.</td></tr>
</table>

KP CREEK From headwaters to Blue River 15040004 – 029 12.1 Miles	USE SUPPORT	OVERALL ASSESSMENT	
	A&Wc – Attaining FBC – Attaining FC – Attaining AgL – Attaining	Category 1 Attaining all uses	

MONITORING USED IN THIS ASSESSMENT				
SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING PERIOD: 03/29/2000 – 10/25/2005		
		NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
Above Blue River UGKPK000.12 100889	ADEQ Ambient	3-6 total and dissolved metals: Antimony, arsenic, barium, beryllium, cadmium, chromium, copper, and zinc. 6 total and 0-1 dissolved: Boron, lead, manganese, and mercury	7-9 samples: Ammonia, dissolved oxygen, pH, total nitrogen, total phosphorus, nitrite/nitrate, total Kjeldahl nitrogen	6 *E. coli* bacteria 8 Fluoride 9 Total dissolved solids 6 Suspended sediment concentration 9 Turbidity

EXCEEDANCES			
POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
Dissolved oxygen	7.0 mg/L A&Wc	09/19/2000 – 6.65 mg/L	Attaining – Low dissolved oxygen due to natural conditions and ground water upwelling. Low stream flow (0.01 cfs).

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS			
EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
	Collected all core parameters		Lab detection limits for selenium and dissolved copper were higher than the A&W chronic criteria in at least 2 samples.
MONITORING RECOMMENDATIONS		Low Priority –Use lower lab detection limit for selenium and dissolved copper.	

LUNA LAKE 15040004 -- 0840 120 Acres	USE SUPPORT	OVERALL ASSESSMENT	POLLUTANTS CAUSING IMPAIRMENT	IMPAIRMENT STATUS
	A&Wc – Impaired FBC – Impaired FC – Inconclusive AgL – Impaired	Category 4A Not attaining	Low dissolved oxygen, high pH, narrative nutrients	TMDL completed in 2000.

MONITORING USED IN THIS ASSESSMENT

SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING PERIOD: 08/17/2001 – 11/03/2004 NUMBER AND TYPES OF SAMPLES Metals	Nutrients – Related	Other
At dam UGLUN-A 100036	ADEQ Ambient HERO Consulting 319 Grant	2 total metal samples only: Antimony, arsenic, barium, boron, beryllium, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, thallium, and zinc.	4 samples: Ammonia, nitrite/nitrate, total Kjeldahl nitrogen 44-49 samples: Dissolved oxygen and pH 25 samples: total nitrogen and total phosphorus.	2 *E. coli* bacteria 4 Fluoride 3 Total dissolved solids 5 Turbidity
Mid lake UGLUN-B 100979	ADEQ Ambient HERO Consulting 319 Grant			
North of fishing dock UGLUN-2 103292	HERO Consulting 319 Grant			
South of fishing dock UGLUN-1	HERO Consulting 319 Grant			

EXCEEDANCES

POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
Dissolved oxygen	7.0 mg/L A&Wc	08/17/2001 – 4.0 mg/L 08/26/2001 – 6.4 mg/L 07/15/2002 – 3.1 mg/L 07/28/2002 – 2.0 mg/L 08/13/2002 – 3.4 mg/L	Remains impaired -- 5 of 11 samples at one site (mid lake) in the upper meter of water had low dissolved oxygen. (Binomial)
pH	<9.0 SU A&Wc, FBC, AgL	08/17/2001 – 9.3 SU 08/26/2001 – 9.4 SU 11/11/2001 – 9.3 SU 06/17/2002 – 9.5 SU 06/15/2002 – 9.4 SU	Remains impaired -- 5 of 11 samples at one site (mid lake) in the upper meter of water had high pH. (Binomial)
Lead	15 µg/L FBC	11/03/2004 – 20 µg/L	Inconclusive -- 1 of 2 lead samples exceeded standards. (Binomial)

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS

EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
Lead	Insufficient metals samples to assess FC, and AgL	Missing seasonal distribution	
MONITORING RECOMMENDATIONS		Medium Priority – Collect samples during critical conditions to determine the effectiveness of TMDL strategies in the watershed. Low dissolved oxygen and high pH may be symptoms of excess nutrient loading. New methods for implementing the narrative nutrient standard should be applied to this lake once adopted, to determine whether narrative nutrient violations are occurring based on the pH and dissolved oxygen violations. Collect lead samples due to exceedance. Collect missing core parameters.	

NORTH FORK CAVE CREEK From headwaters to Cave Creek 15040006 -- 856 5.6 Miles	USE SUPPORT	OVERALL ASSESSMENT	
	A&Wc – Inconclusive FBC – Inconclusive FC – Inconclusive	Category 3 Inconclusive	

MONITORING USED IN THIS ASSESSMENT

SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING DATES: 08/30/2005, 11/09/2005 NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
Above Cave Creek UGNCV000.04 101129	ADEQ Ambient	1 total and dissolved metals sample: Arsenic, barium, beryllium, cadmium, chromium, copper, lead, mercury, and zinc. 1 total metal only: Boron, manganese.	1-2 samples: Ammonia, dissolved oxygen, pH, total nitrogen, total phosphorus, nitrite/nitrate, total Kjeldahl nitrogen	2 *E. coli* bacteria 1 Fluoride 2 Total dissolved solids 1 Suspended sediment concentration 2 Turbidity

EXCEEDANCES

POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
Dissolved oxygen	7 mg/L A&Wc	08/30/2005 – 6.4 mg/L	Attaining – Naturally occurring low dissolved oxygen due to ground water upwelling and very low flows (less than 1 cfs).

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS

EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
	Insufficient core parameters	Insufficient sampling events	Lab detection limits for selenium and dissolved mercury were higher than the A&W chronic criteria.
MONITORING RECOMMENDATIONS		Low Priority – Use lower lab detection limits for selenium and dissolved mercury. Collect missing core parameters to represent at least 3 seasons during the assessment period.	

ROPER LAKE 15040006 -- 1250 25 Acres	USE SUPPORT	OVERALL ASSESSMENT	
	A&Ww – Inconclusive FBC – Inconclusive FC – Attaining	Category 2 Attaining some uses	

MONITORING USED IN THIS ASSESSMENT

SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING PERIOD: 02/16/2000 – 11/22/2000; 05/04/2004		
		NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
At Dam UGROP-A 100080	ADEQ Ambient and TMDL	3-5 total metals only: Antimony, arsenic, barium, beryllium, boron, cadmium, chromium, copper, lead, manganese, mercury, and zinc. 1 Selenium, nickel	8-11 samples: Dissolved oxygen, pH, total nitrogen, total phosphorus, nitrite/nitrate, total Kjeldahl nitrogen	8 Fluoride 8 Total dissolved solids 3 Turbidity
Mid lake UGROP-B 100975	ADEQ and AGFD Ambient and TMDL			
At canal UGROP-CANAL 100978	ADEQ TMDL			
At pond UGROP-POND 100976	ADEQ TMDL			
At boat ramp UGROP-BR 102762	ADEQ and AGFD Ambient			

EXCEEDANCES

POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
No Exceedances			

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS

EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
	Insufficient dissolved metals (cadmium, copper, and zinc) and *E. coli* bacteria to assess A&W and FBC		Lab detection limit for selenium was higher than the A&W chronic criterion.
MONITORING RECOMMENDATIONS		Low Priority – Use a lower lab detection limit for selenium. Collect missing core parameters to represent at least 3 seasons during the assessment period.	

SAN FRANCISCO RIVER From headwaters to New Mexico border 15040004 -- 023 13.1 Miles	USE SUPPORT		OVERALL ASSESSMENT	POLLUTANTS CAUSING IMPAIRMENT	IMPAIRMENT STATUS
	A D E Q	A&Wc – Attaining FBC – Attaining FC – Attaining AgI – Attaining AgL – Attaining	Category 1 Attaining all uses		
	E P A	A&Wc – Impaired (Affected use only)	Category 5 Impaired		EPA added sediment in 2004 (See discussion below)

Light blue highlights indicate EPA impairments based on EPA assessment and listing criteria. This listing may change when EPA reviews and approves the 2006/2008 impaired waters list. Such listings do not satisfy requirements established in ADEQ's Impaired Water Identification Rule; therefore, they are not included in the list of ADEQ's Impaired waters (Appendix B and Appendix C).

MONITORING USED IN THIS ASSESSMENT

SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING PERIOD: 03/28/2000 – 10/26/2005 NUMBER AND TYPES OF SAMPLES Metals	Nutrients – Related	Other
Above Luna Lake UGSFR151.22 100381	ADEQ Ambient	9-14 total and dissolved metals samples: Antimony, arsenic, beryllium, cadmium, chromium, copper, lead, manganese, and zinc. 4 total samples: Barium, boron, nickel, silver, thallium. 16 total and 4 dissolved: Mercury	14 samples: Ammonia, total nitrogen, total phosphorus, nitrite/nitrate, total Kjeldahl nitrogen 27 samples: Dissolved oxygen and pH	13 *E. coli* bacteria 15 Fluoride 15 Total dissolved solids 9 Suspended sediment concentration 11 Turbidity
Below dam spillway UGSFR149.44 103293	HERO Consulting 319 Grant		12 samples: temperature and pH	

EXCEEDANCES

POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
Dissolved oxygen	7.0 mg/L FBC	12/29/2004 – 5.0 mg/L 06/08/2005 – 5.0 mg/L	Attaining – Naturally occurring low dissolved oxygen as stream was drying down to relatively stagnant pools.

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS

EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
	Collected all core parameters		Lab detection limits for selenium were higher than A&Ww chronic criteria.

SUSPENDED SEDIMENT AND TURBIDITY	Evidence of potential sediment impairment: 1. Suspended sediment concentration (SSC) criterion of 80 mg/L was *not* exceeded in 18 samples (9 sampling events); therefore, ADEQ assessed as 'attaining;" 2. SSC values ranged between non-detect to 18 mg/L and would not exceed the proposed standard of 25 mg/L; and 3. The old turbidity standard (10 NTU) was exceeded in 11 of 15 samples; however, the maximum turbidity value was 29 NTU.
MONITORING RECOMMENDATIONS	Medium Priority: Recommend using biocriteria assessments and bottom deposits implementation procedures in this reach, when they are adopted. Use lower lab detection limits for selenium.

SAN FRANCISCO RIVER From New Mexico border to Blue River 15040004 -- 004 20.9 Miles	USE SUPPORT	OVERALL ASSESSMENT	
	A&Ww – Attaining FBC – Inconclusive FC – Attaining AgI – Attaining AgL – Attaining	Category 2 Attaining some uses	

MONITORING USED IN THIS ASSESSMENT

SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING PERIOD: 03/27/2000 – 11/02/2005 NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
Near Martinez Ranch UGSFR0034.57 100834	USGS Ambient	3-7 total and dissolved metals samples: Antimony, arsenic, beryllium, boron, cadmium, chromium, copper, lead, manganese, and zinc. 1 total sample: Barium, nickel, silver, thallium. 4 total and 1 dissolved: Mercury	9 samples: Ammonia, dissolved oxygen, pH, total nitrogen, total phosphorus, nitrite/nitrate, total Kjeldahl nitrogen	6 *E. coli* bacteria 9 Fluoride 9 Total dissolved solids 6 Suspended sediment concentration 9 Turbidity

EXCEEDANCES

POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
E. coli bacteria	235 CFU/100 ml FBC	08/08/2005 – 630 CFU/100 ml	Inconclusive – Only 1 exceedance within the assessment period. Elevated flow and slightly elevated nutrients.
Suspended sediment concentration	Geometric mean 80 mg/L A&Ww	08/08/2005 – 343 mg/L	Attaining – 1 of 6 samples exceeded the SSC criterion (80 mg/L); however, the geometric mean standard was not exceeded.

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS

EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
	Collected all core parameters		Lab detection limits for selenium and dissolved mercury were higher than A&Ww chronic criteria in at least 2 samples.
MONITORING RECOMMENDATIONS		Medium Priority: Collect *E. coli* bacteria data due to exceedance. Note that the old turbidity standard (50 NTU) was exceeded once also (at 74 NTU) when SSC was exceeded. Recommend using biocriteria assessments and bottom deposits implementation procedures in this reach, when they are adopted. Use lower lab detection limits for selenium and dissolved mercury.	

SAN FRANCISCO RIVER From Blue River to Limestone Gulch 15040004 -- 003 18.7 Miles	USE SUPPORT	OVERALL ASSESSMENT	POLLUTANTS CAUSING IMPAIRMENT	IMPAIRMENT STATUS
	A&Ww – Inconclusive FBC – Impaired FC – Attaining AgI – Attaining AgL – Attaining	Category 5 Impaired	*E. coli* bacteria	Add *E. coli* bacteria to 303(d) List.

MONITORING USED IN THIS ASSESSMENT

SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING PERIOD: 01/10/2000 – 11/30/2005 NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
Above Clifton, AZ UGSFR019.04 100708	ADEQ Ambient	12-24 total and 7-24 dissolved metals samples: Antimony, arsenic, beryllium, boron, cadmium, chromium, copper, lead, manganese, mercury, and zinc. 7 total metals only: Barium, nickel, silver, and thallium.	23-24 samples: Ammonia, dissolved oxygen, pH, total nitrogen, total phosphorus, nitrite/nitrate, total Kjeldahl nitrogen	21 *E. coli* bacteria 24 Fluoride 24 Total dissolved solids 13 Suspended sediment concentration 24 Turbidity

EXCEEDANCES

POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
E. coli bacteria	235 CFU/100 ml FBC	08/13/2002 – 500 CFU/100 ml 07/27/2004 – 480 CFU/100 ml	Impaired – 2 exceedances within the assessment period. Nutrients were very elevated (0.5-1.2 mg/L nitrogen, 0.3-1.2 mg/L phosphorus).
Mercury (dissolved)	0.6 µg/L FC	12/10/2002 – 0.75 µg/L	Inconclusive – Only 1 exceedance during the assessment period. Result in a duplicate sample taken that day was <0.5 µg/L
Suspended sediment concentration	Geometric mean 80 mg/L A&Ww	07/27/2004 – 188 mg/L	Attaining – 1 of 13 samples exceeded the SSC criterion (80 mg/L); however, the geometric mean standard was not exceeded.

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS

EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
Dissolved mercury	Collected all core parameters		Lab detection limits for selenium and dissolved metals (lead and mercury) were higher than A&Ww chronic criteria in at least 2 samples.

MONITORING RECOMMENDATIONS	
	High Priority: Collect *E. coli* bacteria to support TMDL development. Collect dissolved mercury due to the exceedance. Use lower lab detection limits for selenium and dissolved metals. Note that the old turbidity standard (50 NTU) was exceeded on four dates (>999 NTU, 143, 187, and 59 NTU). Recommend using biocriteria assessments and bottom deposits implementation procedures in this reach, when they are adopted.

SAN FRANCISCO RIVER From Limestone Gulch to Gila River 15040004 -- 001 12.8 Miles	USE SUPPORT	OVERALL ASSESSMENT	
	A&Ww – Attaining FBC – Inconclusive FC – Attaining AgI – Attaining AgL – Attaining	Category 2 Attaining some uses	

MONITORING USED IN THIS ASSESSMENT

SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING PERIOD: 01/10/2000 – 11/30/2005 NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
Below Clifton, AZ UGSFR006.42 USGS #0944500 100382	USGS Ambient	5-28 total and dissolved metals samples: Antimony, arsenic, beryllium, boron, cadmium, chromium, copper, lead, manganese, mercury, and zinc. 7-8 total metals only: Barium, nickel, silver, thallium.	22-24 samples: Ammonia, dissolved oxygen, pH, total nitrogen, total phosphorus, nitrite/nitrate, total Kjeldahl nitrogen	21 *E. coli* bacteria 24 Fluoride 22 Total dissolved solids 13 Suspended sediment concentration 23 Turbidity

EXCEEDANCES

POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
E. coli bacteria	235 CFU/100 ml FBC	08/13/2002 – 545 CFU/100 ml	Inconclusive – Only 1 exceedance within the assessment period. Very elevated nutrients on that date (1.94 mg/L nitrogen, 1.6 mg/L phosphorus) and lead exceedance occurred on the same date (normal flow.)
Lead	15 µg/L FBC	08/13/2002 – 35 µg/L	Attaining – Only 1 exceedance in 24 samples. (Binomial)
Suspended sediment concentration	Geometric mean 80 mg/L A&Ww	09/18/2003 – 87 mg/L 07/28/2004 – 161 mg/L	Attaining – 2 of 13 samples exceeded the SSC criterion (80 mg/L); however, the geometric mean standard was not exceeded.

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS

EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
E. coli bacteria	Collected all core parameters		Lab detection limits for selenium and dissolved mercury were higher than A&Ww chronic criteria in at least 12 samples.
MONITORING RECOMMENDATIONS		Medium Priority: Collect *E. coli* bacteria data due to exceedance. Note that old turbidity standard (50 NTU) was exceeded on four dates. Recommend using biocriteria assessments and bottom deposits implementation procedures in this reach, when they are adopted. Use lower lab detection limits for selenium and dissolved mercury.	

SOUTH FORK CAVE CREEK From headwaters to Cave Creek 15040006 -- 849 8.1 Miles Unique Water	USE SUPPORT	OVERALL ASSESSMENT	
	A&Wc – Attaining FBC – Attaining FC – Attaining AgI – Attaining AgL – Attaining	Category 1 Attaining all uses	

MONITORING USED IN THIS ASSESSMENT

SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING PERIOD: 01/24/2000 – 12/12/2001; 08/29/2005 – 11/09/2005 NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
Above South Fork Campground UGSCV002.56 100018	ADEQ Ambient	3-6 total and dissolved metals: Antimony, arsenic, beryllium, cadmium, chromium, copper, lead, silver, thallium, and zinc. 4-6 total metals only: Barium, boron, manganese, mercury	7-8 samples: Ammonia, dissolved oxygen, pH, total nitrogen, total phosphorus, nitrite/nitrate, total Kjeldahl nitrogen	8 *E. coli* bacteria 6 Fluoride 8 Total dissolved solids 1 Suspended sediment concentration 8 Turbidity

EXCEEDANCES

POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
Dissolved oxygen	7.0 mg/L A&Wc	01/24/2000 – 5.4 mg/L 05/30/2000 – 5.5 mg/L 12/12/2001 – 4.6 mg/L 08/29/2005 – 6.3 mg/L 11/09/2005 – 6.5 mg/L	Attaining – Low dissolved oxygen levels are naturally occurring due to ground water upwelling and very low flows (<0.5 cfs). Very low nutrients.
E. coli bacteria	235 CFU/100 ml FBC	07/11/ 2000 – 240 CFU/100 ml	Attaining – 3 years of monitoring after the exceedance with no further exceedances. (Note exceedance was not above the screening value of 300 CFU/ 100 ml.)

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS

EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
	Collected all core parameters		Lab detection limits for selenium and dissolved metals (copper, lead, and mercury) were higher than the A&W chronic criteria.
MONITORING RECOMMENDATIONS		Low Priority – Use lower lab detection limit for selenium and dissolved metals. Old turbidity standard was exceeded only 1 of 8 samples (July 11, 2000 at 35 NTU). Recommend using biocriteria assessments and bottom deposits implementation procedures in this reach, when they are adopted.	

TURKEY CREEK From headwaters to Campbell Blue Creek 15040004 – 060 4.6 Miles	USE SUPPORT	OVERALL ASSESSMENT	
	A&Wc – Inconclusive FBC – Inconclusive FC – Inconclusive AgL – Inconclusive	Category 3 Inconclusive	

MONITORING USED IN THIS ASSESSMENT

SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING DATES: 10/30/2002 (field measurements on other dates)		
		NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
At Campbell Blue UGTRY000.18 101180	ADEQ TMDL	1 total and dissolved metal samples: Antimony, arsenic, beryllium, cadmium, copper, lead, mercury, and zinc. 1 total metals only: Boron, chromium, and manganese	5 samples: Dissolved oxygen, pH 1 sample: Total nitrogen, total phosphorus, nitrite/nitrate, total Kjeldahl nitrogen	1 *E. coli* bacteria 1 Fluoride 1 Total dissolved solids 4 Suspended sediment concentration 4 Turbidity

EXCEEDANCES

POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
No Exceedances			

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS

EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
	Insufficient core parameters	Insufficient sampling events.	Lab detection limits for selenium were higher than the A&W chronic criteria.
MONITORING RECOMMENDATIONS		Low Priority – Collect missing core parameters to represent at least 3 seasons. Use lower lab detection limit for selenium.	